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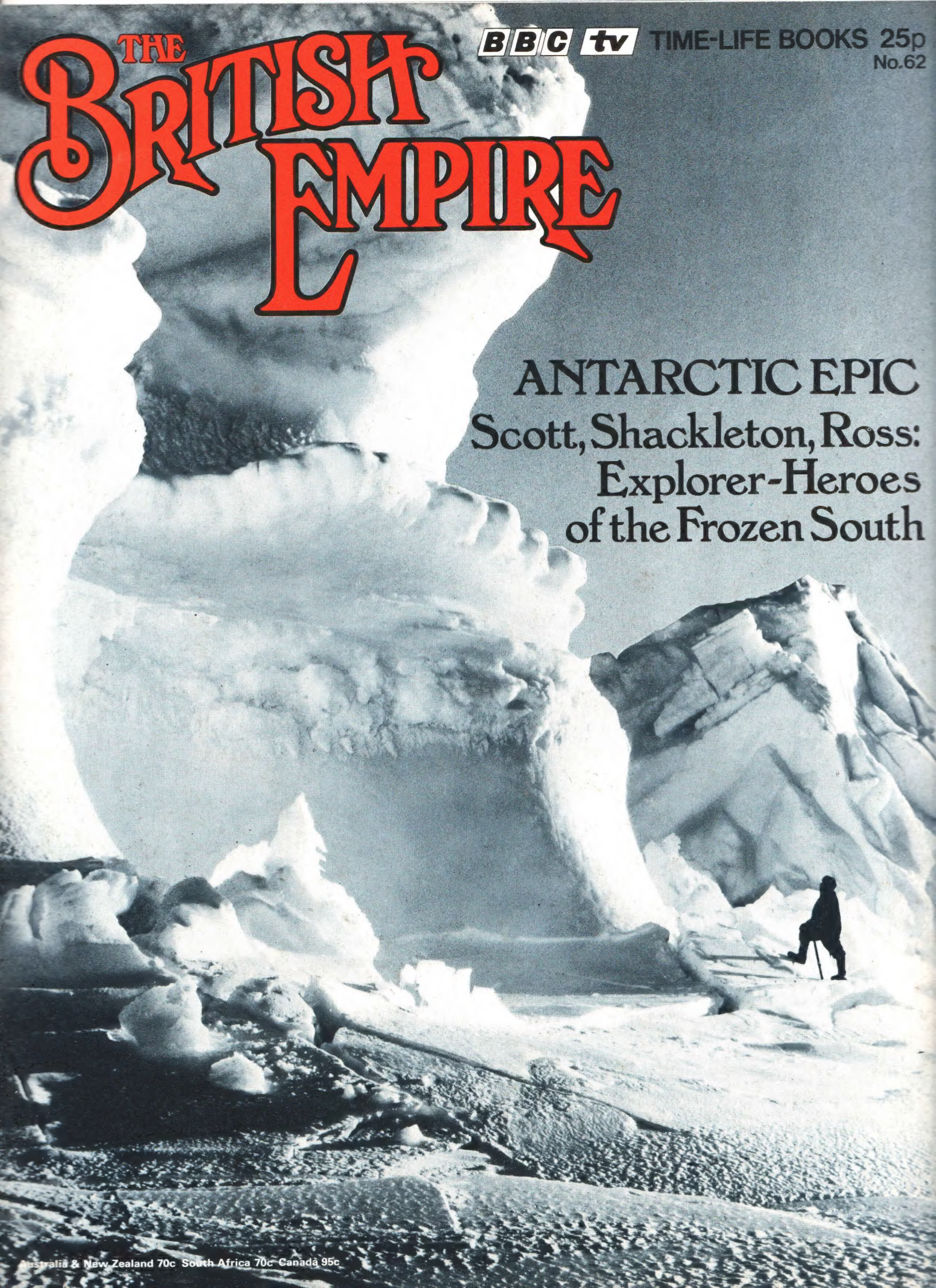
ANTARCTIC EPIC
Scott, Shackleton, Ross: Explorer-Heroes of the Frozen South



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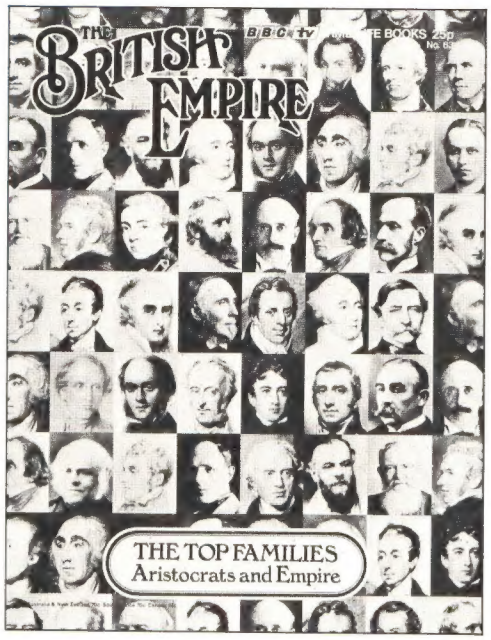

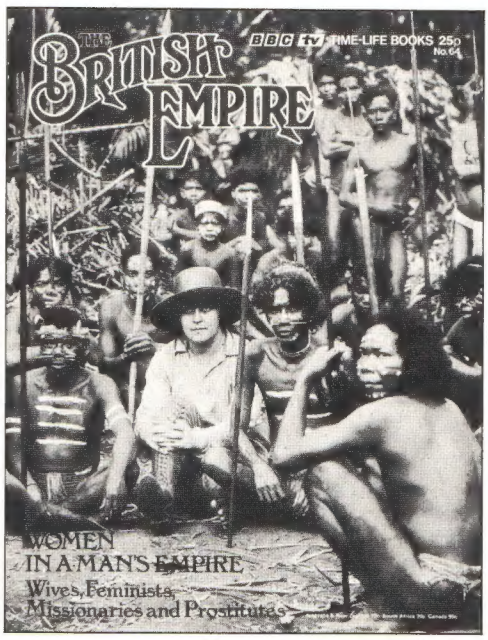

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Cover: Thomas Clissold, the cook on Scott's polar expedition of 1911–12, gazes in awe at a vast and glittering ice-cliff, apt symbol of the overwhelming natural forces against which Antarctic explorers pitted themselves.

ANTARCTIC EPIC

Much of the frozen southern continent was discovered and mapped by a distinguished line of British sailor-explorers, from Captain Cook in the 1770s to Scott and Shackleton in the 1900s and Sir Vivian Fuchs in 1957. In penetrating the icy wilderness at the bottom of the world, these men displayed that perseverance and acceptance of danger that carried the British into every corner of the globe

by Stuart Legg

British explorers were not the first to reach the South Pole. But over nearly two centuries they did most of the pioneering that eventually enabled others to snatch the laurels. Nor has any Antarctic territory been part of the British Empire in much more than the formal sense of planting the flag and claiming possession. But in the South Polar regions Britons displayed many of the qualities which went into the building of the British Empire – love of lonely places, teamwork, gallantry, tenacity to the point of perverseness. And their quest became a source of national inspiration at home and of prestige abroad.

They were first drawn to the far south for entirely practical reasons. Since the days of ancient Greece men had believed that there was a great continent in the southern hemisphere which rivalled Europe and Asia in size: its existence seemed necessary to balance the landmasses of the northern world. By the 18th Century AD this belief had taken on the aura of given doctrine. Armchair geographers in London and Paris, inspired by the exaggerated reports of exploring sea captains, dreamed up an enormous area of land reaching from the underside of the globe to the sub-tropics, fertile, populous and productive: a valuable prize for the first nation to occupy it.

The reality was, and is, very different. Voyaging southward through the most remote and tempestuous seas on earth, a ship approaching the Antarctic enters a region where nature is gargantuan and relentless. She passes first its outer sentinels: giant flat-topped icebergs, some 20 miles in length, drifting majestically northwards, the sun turning the rifts on their towering sides to dazzling sapphire and emerald, seabirds wheeling round their yawning caves, waves breaking in bursts of spume against their glittering bastions. Then, far ahead, the clouds begin to show the white reflection known as "ice-blink." Before long the horizon itself turns white, and the ship enters the pack-ice – a great belt of frozen water perhaps ten feet thick and broken into a jigsaw of floes through which she must thread her way for up to 400 miles. When – and if – she emerges safely from the pack-ice, there will be the relief of a wind-swept stretch of open water before massive cliffs rise from the sea: white cliffs of ice, reaching to the limits of vision.

This is the coastline of Antarctica proper. Inland, beyond the forbidding white façade, lies a continent approximately circular in shape, the size of the United States and Mexico, or Australia and Western Europe, put together. It is wrinkled with mountains, furrowed by valleys, levelled with plains – if they could be seen. But most of these features are overlaid by a tremendous mantle of perpetual ice and snow, through which the outlines of rock and peak only protrude here and there. All else is obliterated beneath a huge domed ice-cap that stretches from sea to sea and varies in depth between 6,000 and 12,000 feet. The surface of the dome forms the largest and highest plateau in the world; and roughly at its centre lies the South Pole.

The great domed plateau is in constant movement; for the ice that composes it flows gradually down, under its own monstrous weight, towards the coasts – there to "calve off" into the mighty tabular icebergs of the Southern Ocean, or to break up into the pack-ice round the shores. Immense glaciers – rivers of ice moving more rapidly – march down from the uplands, their "tongues" sometimes jutting 50 miles or more into the sea. In some areas crevasses – cracks in the ice up to 30 feet wide and of unfathomed depth – make progress perilous, for they are often concealed beneath a lid of snow that will not bear a man's weight. Elsewhere on the ice-cap, the wind cuts the surface into hard parallel ridges, exhausting to cross.

The circular shape of the continent is broken by a long curving promontory, the Graham Land peninsula, reaching towards Cape Horn; and by two enormous bays or inlets known as the Weddell Sea and the Ross Sea. In these bays a strange phenomenon is found: their inner halves are filled with "ice-shelves" – vast permanent raft-like sheets of ice resulting from the gradual damming of the frozen flow from the interior by headlands and shallows. The ice-shelf in the Ross Sea is about the size of France; and its seaward edge forms a solid wall some 500 miles long, rising 150 feet above the level of the water. In the gale-lashed offshore seas lie chains of islands, their skylines jagged, their shores bleak and desolate.

The mainland is almost lifeless. Lichen and a little moss cling to a few exposed rock faces, and the largest land animal is a wingless fly. But at its icy verges millions of penguins strut and peer and gambol. Albatross, petrel and skua gulls ride the air; and in the surrounding seas

are seals of many kinds, ferocious sea-leopards and killer-whales, and that leviathan among creatures, the blue whale, propelling his 100 tons or more of sleek-sided bulk through the depths.

In the winter months Antarctica endures continuous night, the darkness relieved only by a faint lightening of the lower sky at midday. In summer the sun is always just above the horizon; and its perpetual circling suggests a season-long state of sunset. The cold is proverbial: the lowest natural temperature ever recorded – minus 127 °F – was experienced here in 1960 by a Russian team of scientists. But the real enemy is the wind. In the temperate climates of the Northern Hemisphere the average wind velocity is about 10 m.p.h. In parts of the Antarctic it is more like 50 m.p.h. The searing winds become as remorseless as a plague. They crack nostrils, split lips, blister nose and cheeks with frostbite. Blizzards can reduce visibility to a yard, quickly building up whirling snow into drifts 100 feet deep. On the few calm days the silence can be unnerving: voices can be heard distinctly half a mile away; the freezing of one's breath becomes a pronounced crackle. And borne on the silence come the eerie sounds of the ice moving under its own pressure: groans and grinds, creaks and murmurs, shrill shrieks and startling bangs. It is a white world, yet full of colour: of the rainbow hues of iridescent clouds, the brilliant multicoloured curtains of the Aurora Australis, the purples and reds and pinks of uprearing mountain rocks. It is a world of grandeur and terror, where the senses are deceived and no chances can be taken.

On the second of his three great world-discovering voyages in 1772–75, Captain James Cook circumnavigated the globe as far south as he could get without endangering his ship in the pack-ice. He discovered islands – chiefly South Georgia and the South Sandwich group: but found no large mass of land lying across his track. Thus he proved conclusively that a southern continent could not exist in latitudes of immediate interest for colonial purposes. But he surmised that the ice all round him might be joined to land of some kind farther south.

Cook exploded the dream of colonies. But he unwittingly created a savage commerce through his descriptions of the teeming marine life in the southern seas. The sealing ships began to head south; and soon some 200 vessels from both sides of the North Atlantic were combing the waters round the islands Cook had found. The rivalry between British and American sealers was fierce: killing rose to wholesale slaughter, slaughter to heedless massacre, until the fur-bearing seal was nearly exterminated. Fresh sealing-grounds swiftly became necessary; and this led to probes still farther south. And there was another commercial motive for the search. By the 1820s Britain and the U.S.A. were hotly competing for the trade of Latin America. British merchants feared they might be elbowed out; and if this happened, nearby islands in the Southern Ocean might become vital to them as emergency trading bases.

In this context a significant adventure befell William Smith, a British merchant captain plying between Latin American ports. In 1819 his brig was carrying a cargo of machinery for an English firm from Valparaiso in Chile round Cape Horn to the River Plate. Off the Horn high seas forced him from his course and drove him southward. Here, through the snowy murk of a gale, he had a glimpse of land.

In the foul weather, and with a valuable cargo, he could not investigate further at the time: but on reaching Montevideo he reported what he had seen. The British community disbelieved him. But a group of American merchants took him aside and offered him handsome rewards if he would tell them the position of his find. Since, however, "he had not taken possession of the land in the name of his King, he resisted all the offers from the said Americans." Instead he went back; and on his second visit definitely located the South Shetland Islands, off the tip of what is now the Graham Land peninsula.

This time the British were less sceptical; and the captain of a British warship then at Valparaiso persuaded Smith to return once more with a naval lieutenant, Edward Bransfield, in command of his brig. Under Bransfield's authority, the South Shetlands were "satisfactorily attached to the British Empire"; and then the explorers continued south. On January 30, 1820, gaps in the clouds "offered to our view an unknown coast." That afternoon, brightening skies showed them the clear outline of extensive land. "It was a prospect the most gloomy that can be imagined, and the only cheer was that this might be the long-sought Southern Continent." The sketch maps they made leave no doubt that they were looking at the coast of Graham Land.

Was this the first sighting of the Antarctic continent? Some American historians dispute it, holding that the continental coast had already been seen by a sealer from Stonnington, Connecticut, named Nathaniel Palmer. Whatever the truth, the British were now convinced that the southward probes were worthwhile. Smith and Bransfield were followed by James Weddell, John Balleny and others – all sealers or merchant captains who turned explorers to benefit their business. And their successive findings pointed to the same fact: something large and solid lay beyond the Antarctic Circle.

Governments were now taking up the search; for something solid, even though unattractive, might be useful for purposes of state. Russia had already shown her interest. She wanted to find new sea-routes, free from British or French influence, by which she could supply her remote settlements in eastern Siberia and north-western America. And if the stories of terra firma in the far south were true, it might be possible to plant staging bases there. In this hope, the Tsar Alexander I ordered Captain Baron Fabian von Bellingshausen of the Imperial Navy to undertake a voyage in 1819 – the same time that the early sealers and merchants were making their discoveries. Like Cook, von Bellingshausen sailed right round Antarctica: but whereas Cook had only guessed at the existence of the continent, the Russian saw the ice-cliffs that mark much of its coastline. Oddly enough, however, considering the object of his mission, he made no claim to have sighted a large land-mass and no attempt to establish Russian sovereignty.

Then Washington became concerned. The veils of the south were lifting, and America might fall behind in a race to develop fishing grounds, trade routes and bases. In 1836 Congress took action, authorizing funds for a United States

THIS MAP OF ANTARCTICA is dotted with the routes of the continent's principal British explorers. Although the British were beaten to the Pole by a Norwegian, Roald Amundsen (whose route is also shown), they had long since claimed the Pole's islands outposts for the Empire and prepared the way into the interior of the continent.

Exploring Expedition. The project was born in discord, intrigues and a welter of resignations. But Lieutenant Charles Wilkes, the officer who finally accepted command, was a man of forceful perseverance. He sailed along much of the Antarctic mainland facing the Indian Ocean, though he was misled about the position of the coast by the deceptive effects of light on the white cliffs.

During Wilkes's lonely voyage, one of his ships was enveloped in the dense fog common in the freezing areas. Suddenly it lifted – to reveal, to the amazement of the crew, a French vessel. The French government, too, were eager for a share in the prestige of southern discovery; and the strange ship was part of an expedition mounted by a naval captain, Dumont d'Urville, at the urging of King Louis Philippe. The formidable cliffs forbade a landing on the mainland: but a boat's crew scrambled ashore on an outlying island and planted the Tricolor. The nearby coast was called Adelie Land in honour of d'Urville's wife, and as the Frenchmen triumphantly reported, 'we at once regarded ourselves as being on French soil."

The British were now officially astir. Britain had vital imperial possessions in the Southern Hemisphere, and she must keep her lead there. Further, she had undertaken, not only to guard the seaways, but to make them safe – to protect their traffic by seeking and disseminating the latest hydrographic information. In addition, the Admiralty wanted to acquire a more thorough understanding of the magnetic phenomena that governed the operation of compasses.

The earth acts like a great bi-polar magnet; and a magnetic compass needle, if allowed to swing freely, comes to rest pointing approximately to the North and South Poles. Approximately, but not exactly: for the needle points to a magnetic pole which differs in position from the geographic pole. Moreover the angle between these two poles is subject to daily and long-term changes as well.

Where were the magnetic poles, and what were the laws governing the variations? In 1831 Sir James Clark Ross, a thick-set ruddy-haired expert in terrestrial magnetism, had found the North Magnetic Pole in the Canadian Arctic;

and shortly afterwards the German mathematician Johann Gauss predicted that a corresponding South Magnetic Pole would be found near a certain spot – Lat. 66°S, Long. 146°E – in the far south. D'Urville, aware of Gauss's calculations, had tried but failed to reach this spot which, for all that was known, may have lain on sea or land.

To get there became the main purpose of a major British expedition, financed by Parliament and organized by the Admiralty. Two warships of unusually stout construction, *Erebus* and *Terror*, were detailed for the voyage, additionally reinforced by double-coppered hulls and watertight bulkheads. The leader selected was Captain J. Clark Ross.

What turned out to be the most important Antarctic expedition of the 19th Century left Margate Roads in September, 1839. About a year later *Erebus* and *Terror* battered their way into the pack-ice, their hulls shuddering under the repeated impacts, their helmsmen constantly changing course to take advantage of the gaps that opened up. In four days they were through: a triumph for Ross and for the shipyards that had fitted out his vessels. Then an event of the greatest moment occurred.

Ross had chosen a route to the Antarctic mainland which was different from that of previous explorers: but on reaching land, he expected, like them, to be confronted by a monotonous line of ice-cliffs stretching east and west across his bows. Instead, he found himself approaching majestic chains of snow-capped peaks; and the coastline to which their foothills fell, when he began to follow it, led southward – apparently towards the heart of the continent. "It was a beautifully clear evening, and we had a most enchanting view of the magnificent ranges," he wrote later. "In a few places the rocks broke through their icy covering, by which alone we could be assured that land formed their nucleus."

He had, in fact, struck the western coast of one of the two great inlets into the continent; and he was now sailing into it, with its mountainous shores on his right hand. It led him south for some 400 miles: and then another astonishing spectacle met his eyes. Ahead appeared a large island, and on it stood two great conical peaks – one of them a volcano in active eruption. In that chilling white world "to see the dark cloud of smoke, tinged with flame, rising from the volcano in a perfectly unbroken column, one side jet black, the other giving back the colours of the sun, was a sight surpassing everything that can be imagined."

Ross had already passed the latitude predicted for the South Magnetic Pole: its presumed location now lay behind him, and some distances to the west. He tried to find a channel through the mountains that would lead him to the spot: but none opened, and it became clear that it lay inland.

But while searching he made another startling discovery. From the island of the volcano he saw a long white line edging the sea and extending eastward as far as the eye could see. On closer approach this resolved itself into a massive flat-topped wall of ice dropping sheer to the water. It seemed to be the northern edge of an enormous level plain of ice: but he could not be sure, for the summit of the wall towered above the tallest masthead of his ships.

He had come upon the seaward face of the gigantic ice-shelf filling the inner half of the inlet he had found. Day after day he cruised east along it without finding any break in its front. "We might with equal chance of success try to sail through the cliffs of Dover," he said. He wanted to follow it to its end: but the summer was getting late, and he had to withdraw to Tasmania.

Next year he was back: but the weather was far worse. The winds bit through heavy clothing, decks and rigging were thickly coated with frozen spray. As far as Ross could see, the eastern end of the ice-wall seemed to merge into another range of mountains, but he could explore no further.

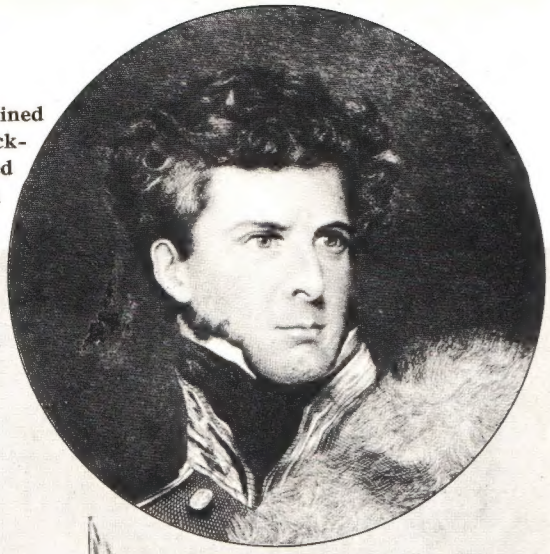
On New Year's Day, 1842, he was hit by a terrifying storm. "Our ships were involved in an ocean of rolling fragments of ice, hard as floating rocks of granite, which were dashed against them so that their masts quivered at each successive blow; destruction seemed inevitable from the tremendous shocks." *Erebus*'s rudder was badly damaged, *Terror*'s torn from the sternpost. It was time to leave the area for good.

The sea in the outer part of the huge inlet Ross had discovered is now called after him; and the giant sheet of ice inshore of it, along which he had sailed, is the Ross Ice-Shelf. He formally took possession of the region for Britain, naming the twin volcanic peaks Mount Erebus and Mount Terror after his ships, and the splendid mountainous coast leading southward towards them Victoria Land, for his young Queen. It would, he said, be "surely the whitest if not the brightest jewel in her crown." He had not reached the South Magnetic Pole: but he had been farther south, and made discoveries more crucial for the Antarctic future than anyone before him. For by revealing the deepest inlet into the continent's circular coastline he had laid open the shortest land route to the geographic South Pole – if and when man's yearning for adventure should set him on that formidable path.

But the time was not yet: for momentous events in the Arctic now claimed public attention. In 1845 the veteran explorer Sir John Franklin set out in quest of the long-sought North-West Passage; and his entire expedition vanished into the northern wastes. So great was the shock of his disappearance that over the next 20 years some 40 expeditions joined in the hunt for him. These searches led to further Arctic exploration; and both diverted nearly all available funds and effort to the north. Until the turn of the century, the assault on the Antarctic took second place.

The lure of the south, however, was far from dead. In 1860 Captain Matthew Maury, head of the Hydrographic Branch of the U.S. Navy, called for an end to the inertia that had followed Ross's brilliant achievements. On a visit to London he made a fervent appeal for Britain to resume her leading role in the Antarctic. And he hinted that if the British "made not haste to undertake the duty, it might be that the go-ahead American nation will yet be before them."

At the time Maury's plea fell on deaf official ears: the protracted hunt for Franklin had proved costly; Britain had done her bit in polar exploration for the present. It was not until 1872 that H.M.S. *Challenger*, the first steamship to cross



The British navigator, Captain James Ross (right), joined his men to ring in the New Year of 1842 on the pack-ice of Antarctica (below). When his ships were unlocked from the ice, he continued the 54-month voyage on which he mapped the general outline of the continent.

the Antarctic Circle, quietly left home waters and headed south. Her orders were undramatic: she was not to concern herself with the continent, but with the seas surrounding it. She was to investigate these in detail; measure their depths and currents, gather samples of their marine life and of the rocks on their floors.

Challenger returned in 1876 with as little fuss as she departed. But she brought back an unprecedented mine of information on the southern seas; and a young Canadian scientist, John Murray, made it his business to assess and interpret it. The task took him no less than 17 years. But on a gloomy November evening in 1893 he electrified a meeting of the Royal Geographical Society by presenting a comprehensive and, as it turned out, remarkably accurate picture, entirely reasoned from the expedition's records, of the polar land-mass neither he nor the crew of *Challenger* had seen. There could be no doubt now, he asserted, of the Antarctic's continental core: the fragments of rock the ship had dredged up were only found in continental landscapes, and the sea-creatures she had scooped from the depths included tiny animals whose ancestors were known once to have inhabited continental waters. He went on to describe what must be its approximate size and shape and contours; the colossal movements of ice and snow, edging down from the central highlands around the Pole to form the coastal ice-cliffs familiar to the early explorers; the great icebergs breaking off from them, and drifting northward to drop their pieces of ice-embedded rock as they melted in warmer waters.

Man had located a continent in the frozen south. He had found weak spots in its outer armour. And now he had drawn by inference a lucid picture of its inner secrets. But only a very few had ever landed at its rim, and those momentarily. The final hazardous task remained: to gain a lasting foothold on its shore, and cross the interior plateau to the South Pole at its heart.

Shortly after Murray's lecture, a Norwegian ship anchored off Victoria Land. She was looking for whaling-grounds that might prove richer than the depleted seas off Greenland. The ice conditions happened to be favourable, and two young Norwegians called Borchgrevink and Bull got ashore. "The sensation," they wrote, "of being the first men to set foot on the real Antarctic mainland was strange and pleasurable." Later, Borchgrevink went back – to dare the Antarctic elements by digging himself in for the winter with a small party. They endured 75 days of numbing cold and almost total darkness. "We began to know every line in each other's faces. The darkness weighs on one's mind. The silence roars in one's ears. It is centuries of heaped up solitude." Then, as the sky lightened, the ship returning for them found a point along the Ross Ice-Shelf where the face of the white wall had collapsed. Again Borchgrevink landed, this time with an English companion. They managed to climb to the ice-plain at the top, and made trial ski and sledge runs across its level surface.

As the 20th Century opened, they came home with the news that it was possible to winter on the continent, and to use the Ice-Shelf as a relatively easy route towards the polar plateau. The implication was clear: from the great inlet Ross had

found, and the sheet of flat ice within it, the Pole might be attained.

Already the Sixth International Geographical Congress had launched a worldwide appeal to complete the conquest of the Antarctic; and in several countries plans were being laid for expeditions to the far south. In Britain likewise a strong responsive movement was afoot, centring on the dominating figure of Sir Clements Markham, President of the Royal Geographical Society.

The moment was ripe for Markham's determined campaign for funds; for with the new century, the motives behind polar exploration were radically changing. Hitherto it had largely been the preserve of governments and their navies, supported by the advice of learned societies and by the enthusiasm of associations fostering amateur study of the natural world. But the increasingly industrial society of the West was now throwing up new sources of sponsorship. Wealthy businessmen were not averse to the kudos of backing worthwhile patriotic projects; and a rising popular press wanted adventure for its readers. Finance from such quarters, and especially from the press, brought exploration into the full glare of mass publicity. In the Antarctic context it began to turn what had been a strictly scientific, and often strategic quest into a dramatic race for the South Pole.

Markham secured handsome contributions from a rich industrialist, Llewellyn Longstaff, and from the newspaper-owner Lord Alfred Harmsworth. Then he bludgeoned the Treasury into doubling the sum privately subscribed; and with the help of the learned societies, persuaded the Admiralty to design a special ship for the expedition. This was the *Discovery*: a steamer with sails to conserve coal, an immensely strong hull to resist ice pressures and a minimum of metal to ensure accurate magnetic observation. He then turned to the vital question of the leadership.

With all his genius for money-raising, Markham was a man of serious and even cautious purpose. Unlike many of his sponsors he wanted no rush for the Pole, but rather, at this stage, a thorough reconnaissance, "a systematic exploration with all the appliances of the modern investigator," spread if pos-

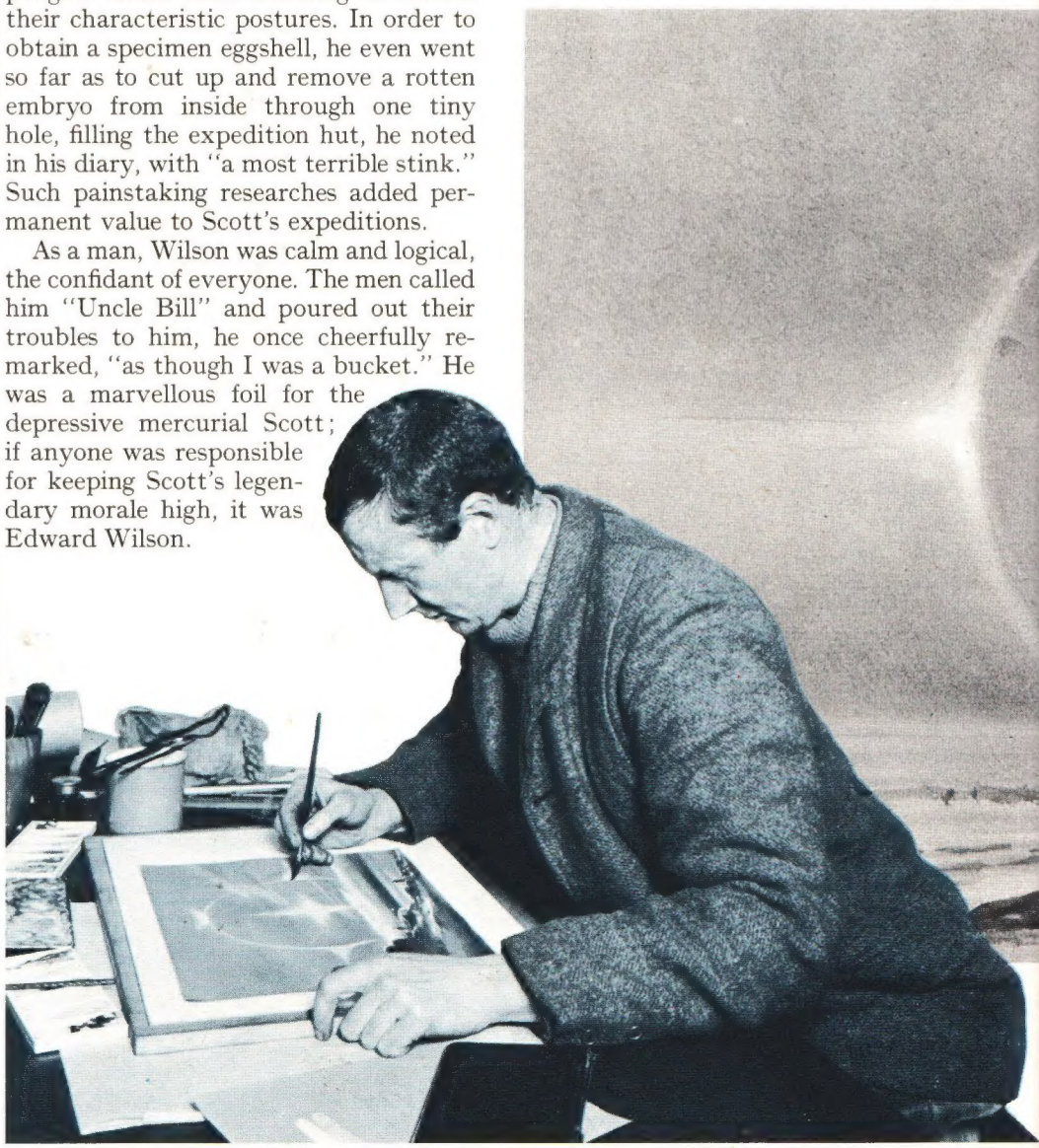
Edward Wilson: Saintly Scientist of the South

Dr. Edward Wilson, one of the five explorers who died on Scott's polar journey in 1912, was the next most important member of the team after Scott himself, revered almost as a saint by his colleagues and known as an outstanding naturalist and artist. He accompanied both of Scott's two Antarctic expeditions, sailing on the *Discovery* in 1901 as second surgeon and vertebrate zoologist and then, in 1910–12, heading the scientific staff of the *Terra Nova*.

To Scott, an ambitious programme of scientific work was almost as important as the race to the South Pole, and Wilson was ideally chosen to carry it out. A Cambridge graduate, he combined a meticulous approach to research with a flair for painting and drawing (some of his work is shown here). In his special study of the Emperor Penguin, he used both talents to good advantage, sitting for hours over intricate dissections of the penguin chicks and recording on canvas their characteristic postures. In order to obtain a specimen eggshell, he even went so far as to cut up and remove a rotten embryo from inside through one tiny hole, filling the expedition hut, he noted in his diary, with "a most terrible stink." Such painstaking researches added permanent value to Scott's expeditions.

As a man, Wilson was calm and logical, the confidant of everyone. The men called him "Uncle Bill" and poured out their troubles to him, he once cheerfully remarked, "as though I was a bucket." He was a marvellous foil for the depressive mercurial Scott; if anyone was responsible for keeping Scott's legendary morale high, it was Edward Wilson.

One of Wilson's sketches records how he and his colleagues man-hauled loaded sledges.



This chick belonged to the Emperor Penguin family, a species first researched by Wilson.

Weddell seals were named after the British discoverer of the Weddell Sea.

Stooped over his desk, the artist-scientist Edward Wilson (left) concentrates on a painting of the Antarctic moon. The final version (above) accurately details the arcs of light caused by refraction of the moon's glimmer through ice crystals in the cloud. But it also betrays, in its beauty and solemnity, the deep, mystic faith Wilson had in the miracles of Nature.

sible over two Antarctic seasons. This called above all for a leader whose steadiness would be immune to the pursuit of glamour. At the same time he was a staunch admirer of the training and discipline of the Royal Navy: in his view no one was likely to prove more responsible than a first-rate naval officer.

Some years before, visiting the West Indies, he had been lastingly impressed by the conduct of a midshipman, Robert Falcon Scott, in some sailing races he had watched at St. Kitts. Now, quite by chance, he met a young lieutenant on a London street – and recognized the former midshipman of whom he had thought so well. In the course of conversation, his previous good impressions were confirmed. Here was a product of naval tradition carried to its finest pitch in up-to-date terms. This officer had no polar experience: but he was a dedicated professional, able and ambitious, setting himself almost impossibly high standards, sparing no self-criticism to better his judgment and performance. Markham suggested that Lieutenant Scott should apply for the post of leader of the British National Antarctic Expedition; and the application duly succeeded.

Scott's first expedition left Cowes in August, 1901; and his departure inaugurated the period of about 15 years that has been called the heroic age of the Antarctic. It was a closing rather than an opening chapter in the epic of exploration. For it was the last period in which small parties, slenderly equipped, set out to conquer a vast and pitiless continent where existence itself was still an experiment; when the food and fuel on which life hinged had to be hauled in severely limited loads across tremendous distances by animal or human muscle; when the faith of men in themselves and each other could be the key to heroic triumph or death.

From the first, Scott respected his instructions: he made no attempt to reach the Pole, but confined himself to enlarging knowledge of its approaches – and so to preparing the way for others. Reaching the Antarctic mainland he retraced Ross's track, sailing along the mountainous coast of Victoria Land, then turning east along the seaward face of the Ice-Shelf. It was important to reconnoitre

the surface of the frozen plain at its summit; and for this he had a new aid. The *Discovery* carried a balloon. It would hold only one passenger and Scott, though he had no experience of ballooning, determined to be that one. "If some don't come to grief," muttered Dr. Edward Wilson, the expedition's biologist, "it will only be because God has pity on the foolish." As he ascended, Scott forgot to let the sand ballast out gradually, throwing it out instead by whole sackfuls. The balloon shot up, to be brought to a jarring stop at the full length of the mooring wire. But from 800 feet he had a superb view of the ice-sheet. It seemed to roll away to the horizon in long parallel white waves. Its surface, as Borchgrevink had found, appeared to be traversable when conditions were good.

The *Discovery*'s first Antarctic winter was spent at the southernmost point of the Ross Sea inlet – as close to the polar plateau as a ship could get. Here, at a site he called Hut Point, Scott landed tents for stores and scientific instruments. The ship was soon frozen in; and on board her, he and his people settled down for the months of darkness. But while the autumn light still allowed, they trained intensively for the rigours of the long inland marches to come. On practice sledging treks they familiarized themselves with "pemmican" – powdered beef suspended in lard cooked into a thick soup and stiffened with biscuit. This "hoosh" became a staple diet of the Antarctic. In addition, they accustomed themselves to the claustrophobic misery of lying in tiny tents for hours at a stretch during blizzards, when the weight of drifting snow brought the sagging canvas to within inches of their bodies and hot meals were impossible. Even so Scott ceaselessly criticized himself: "Our ignorance was deplorable. Food, clothes, everything, was wrong. The lack of system was painfully apparent."

All through the winter they laboured to reorganize themselves and their gear. For relaxation they published two papers – the *South Polar Times* and *Blizzard* – to which wardroom and lower deck alike contributed. And in between the eternal "seal liver for breakfast, seal steak for dinner – very good, better than beef," there was *Ticket of Leave, a Screaming Comedy in One Act at the Royal Terror Theatre.* Then, in November, 1902, as soon as the southern spring permitted, the first long-distance march began – across the Ice-Shelf, towards the interior.

Scott took with him three sledges loaded with supplies and pulled by husky dogs, and enough men to lay successive caches of victuals for his return journey. This system of spacing depots of food along the path of a trek – to ensure a homebound party's survival – became standard practice on the great polar marches of the next few years. As they went, each support-team dumped its stores and returned to the ship. Then Scott and two companions ploughed on alone, carrying on one sledge their tent, paraffin for cooking, and as much food as possible: three specks moving steadily southward over the limitless white expanse of the Ice-Shelf. Sometimes they made 50 miles a day: sometimes, when the surface was crusted or heavy with drifted snow, only five. After 59 days they were beginning to flag and food was running low. At 530 miles from the Pole they turned back: but not before they had seen what lay beyond. On the far horizon, where the Ice-Shelf merged into the mainland proper, giant summits were visible. Clearly, any future party reaching for the Pole would have to scale them before attaining the polar plateau. In sub-zero temperatures and rarefied air, over glaciers and crevasses and drifts, it would be a daunting task.

The march back to the ship yielded more experience, revealed fresh problems. The depots proved inadequate, and the three had to cut their rations to hunger level. They suffered from snow-blindness; and one of them developed scurvy so acutely as to require invaliding home as soon as a relief ship should arrive. But the most serious difficulty was with the dogs. Most of the *Discovery*'s complement, like other British polar explorers, were seamen; and though they had had advice from expert Scandinavian dog-handlers – who had learned the art from the Arctic Eskimos – they had never had much success with the 19 dogs they had brought to pull their sledges. Time and again, on exercise runs, drivers had fetched up with their teams in a chaos of tangled traces: in camp the dogs had fought each other, run away, chased seals, got lost. Now, on Scott's homeward trek, the dog trouble came to a head. Scott realized that his men would never learn to control the dogs. Furthermore he was sickened by the Scandinavian practice, which he was forced to adopt, of killing off the weaker dogs as meat for the stronger.

Exasperated, he came to a crucial decision: henceforth he would do without dogs altogether, and haul his sledges by manpower. "No journey ever made with dogs can approach that fine conception when a party of men go forth to face hardships with their own unaided efforts. Surely in this case the conquest is more nobly won." It was a rationalization typical of his character. Someone afterwards said he was the kind of man who would seek to climb Everest without oxygen. But huskies were the lightest and swiftest form of haulage over ice and snow, and the British failure to master their use was to cost them dearly. In the race for the Pole, man-haulage was to slow them down; in the ultimate struggle for survival it was fatally to exhaust them.

After his second winter in Antarctica, Scott determined to reach the polar plateau. Two of his men had already probed into the mountains of Victoria Land and reported a passable route to it. The way led up one of the great glaciers lying between the peaks. Day after day Scott and his party toiled up it, harnessed to their sledges by belts and shoulder-braces – for there were no dogs now. He said it was the hardest physical work he had ever experienced. On the granite-like rutted surfaces the sledge runners tore and split. But William Lashly, a naval chief stoker and a brilliant handyman, set to work then and "for hours the scrape of the file and the tap of the hammer broke the vast silence" as he lapped new lengths of metal into place.

The sledges repaired, they pressed on. At 9,000 feet they emerged on to the monstrous dome of ice and snow that sheathes the bottom of the world. Gasping for breath, they gazed at the wind-tormented plateau stretching away southwards towards the Pole, rising steadily into white infinity. Awed, they turned back.

They were never out of unexpected

peril. On the way down, Scott's sledge was descending a steep slope. He was in front to guide it, with Lashly and Petty Officer Edgar Evans behind to keep it under control. Suddenly Lashly slipped. Next moment the three were on their backs, with the sledge accelerating and dragging them with it. Slithering and rolling over each other, enmeshed in their harness, they strove in vain to break the growing speed. Then, still wildly sprawling, they struck a rougher surface: sledge and men leaped into the air – and came to rest. All were painfully bruised; but by a miracle life and limb were intact. Lashly described it more laconically: "The old sledge took charge and hauled the three of us down faster than we wanted." Scott's party reached the *Discovery* on December 25, 1903 and the vessel broke out of the ice on February 16, 1904, free to start her journey home.

When the *Discovery* crossed the Antarctic Circle on her way home, she carried men who had lived at the threshold of the southern continent for 26 months, and had penetrated its wholly unknown interior. And she bore their leader back to a hero's reception. Standing on the platform of the Albert Hall, before the flags his sledges had carried, Scott told his story. The packed crowd listened enthralled and gave him a delirious ovation. For Markham as well it was a victory: to him it proved that "the British Navy could still go almost anywhere and do almost anything."

The man whom Scott had had to invalid home with scurvy was Ernest Shackleton. His breakdown had been a bitter blow to him, for he was normally a man of immense strength. And exploration was now high in the headlines: rumours of poor health could prejudice his future. He determined to show what he could do; by whatever means, he would be the first to the Pole.

Shackleton was almost diametrically opposite to Scott in personality. Of Irish stock, he was optimistic, genial, captivating; a rolling stone, an adventurous gambler. He had joined the Merchant Navy at 16, transferring from line to line as the whim took him, knocking about the world in sail as well as steam. Leaving the sea for a spell, he had tried his hand as a business speculator and as a candidate for Parliament – without success; but he had made his mark as a gifted journalist and lecturer. After his voyage with Scott he had come to roost as an employee in the Glasgow engineering firm of William Beardmore. And Beardmore, impressed with Shackleton's drive and enthusiasm, guaranteed the costs of his return to the Antarctic at the head of an expedition of his own.

Freed from dependence on official bodies who were more concerned with scientific objectives, Shackleton could concentrate his mind on a single project. Using Scott's old site at Hut Point as his base, he would march across the plateau to the Pole, sending a separate party to reach the South Magnetic Pole – also for the first time. The claims of science as well as travel were urged upon him: and though it was once said jokingly that he thought geology was something to do with precious stones, he took them seriously. But in his own mind the priority was clear: "The money was given for me to reach the Pole."

Shackleton was famous for his luck. But no sooner had he announced his expedition – and been flooded with applications to join it – than he received an unexpected setback. Scott, then serving with the Mediterranean Fleet, wrote asking him not to use his old quarters at Hut Point since he hoped to return south himself later on. In honour Shackleton could only comply; but it called for drastic revision of his plans. The next best spot to aim for would be the farther, eastern, end of the Ross Ice-Shelf: that would take him ashore a little closer to the Pole – *if* he could get ashore there at all. But it meant a different kind of ship; and he finally settled for a small tough Norwegian sealer, renaming her the *Nimrod*.

Towed by a collier to save coal, the *Nimrod* left New Zealand, where the expedition had gathered on New Year's Day, 1908, with a complement that included men subsequently celebrated in the history of science and discovery. There was Raymond Priestley, a young geologist from Bristol; and Douglas Mawson, an Australian physicist from Adelaide who was not only to become a distinguished Antarctic explorer himself, but a moving spirit in advancing his country's long-term interest in the region. There were two naval ratings, Ernest Joyce and Frank Wild, who had been with Scott and, like Shackleton himself, had learned their polar lore from him.

To his "band of brothers" Shackleton quickly became "The Boss." He was a born leader. He might lack Scott's taut instinctive feel for discipline: but he made up for it by personal magnetism, force of example, and a knack of checking overfamiliarity at the right moment. Like his courage, his herculean capacity for work was infectious and his example spurred men to the limits of their endurance. From sheer fatigue Mawson fell asleep on the cross-head of the ship's engine, rocking up and down with its rhythmic movement; another scientist dropped off at the wardroom table with a spoon still in his mouth.

After Scott's experience with dogs, Shackleton had decided to try an experiment in transport: he had brought ponies as the main means of pulling the sledges. But on the voyage south the *Nimrod* ran into furious gales. In their wooden stalls on deck the ponies continually lost their footing and fell. Several died; and by the time the expedition reached the Ice-Shelf it was clear that Shackleton's team would have to revert, at least in part, to man-hauling the sledges.

Here, at the seaward front of the Ice-Shelf, Shackleton's luck failed him again. At the most promising point for a landing, the ice had calved off, leaving a deep bay whose shores were too dangerous to consider as a base.

A wind from the north sprang up, driving the ship towards the frowning façades. Urgently the *Nimrod*'s captain pleaded for a sheltered landing-place. Only one was known for certain: the neighbourhood of Scott's Hut Point. With the weather as it was, any untried alternative might spell catastrophe. Finally Shackleton gave in; and at a site 23 miles from Hut Point he landed his men and equipment with the greatest difficulty – to face a winter tortured by his conscience because he had been forced into breaking his undertaking to Scott.

It was also a winter of tortured calculations. With the onset of spring they would embark on a journey of no less than 1,730 miles to the Pole and back: as far as from Edinburgh to Athens, farther

than from Miami to Montreal. They would have only four ponies – more had succumbed to the bitter climate – so most of that journey would be made on foot or skis, dragging their sledges over totally unknown country in freezing temperatures, terrible winds and, doubtless, across exhausting surfaces. And they had four summer months in which to make it. That meant an average of 15 miles a day with very little in hand for rest or emergencies. It meant also that sledge loads must be kept as light as ruthless slashing of non-essentials could make them. On paper they shifted and re-shifted men, ponies, loads, but it all ended at about the same bleak figure: 34 ounces of food per man per day was the maximum they could allow.

In October, 1908, as early in the season as they dared, they set out – to traverse the flat waste of the Ice-Shelf, to scale the formidable mountains Scott had seen at its inner edge, to trudge over the barren plateau, always uphill, to the Pole; and then to return. Some ten days later the depot-laying party turned back, leaving Shackleton's party to plod on across the Ice-Shelf, heading for the mainland. He had with him three other men, the four ponies, and two tents. They passed Scott's farthest point; and soon the snow-capped ranges beyond drew nearer. "We watched the mountains rise from the great unknown ahead of us. No man could tell what wonders might be revealed, and our imaginations would take wings until a stumble in the snow, the sharp pangs of hunger or the ache of physical weariness brought back our attention to the present." The men were going well, but – a half-expected misfortune – three of the ponies successively weakened and had to be shot. They ate part of the meat on the spot – "poor old 'Chinaman' was a tough and stringy horse" – and cached the rest in a deep-freeze of snow mounds in preparation for their return.

The summits of the ranges seemed to block the way to the plateau and the Pole. But when they climbed an outlying hill to reconnoitre they were filled with a surge of hope. Before them lay a huge river of ice – which proved to be the largest in the world, as wide as the biggest glacier in Switzerland is long. Its course lay southward, upward, between the peaks; and its farther end, many miles away, seemed to merge into the polar plateau. It was the obvious route to the Pole, and they called it the Beardmore Glacier after their sponsor. Two days later they were on it and climbing, laying food depots as they went: up into thin air and piercing cold, their breathing painful, their hunger perpetual.

Then Shackleton's luck deserted him once more. Frank Wild, leading the last pony, suddenly gave a shout and disappeared with his pony. The snow-lid concealing a crevasse had given way under him. Rushing up, the others found him hanging by his left arm. They pulled him out and managed to secure his sledge: had it fallen into the chasm with its load they would have been in dire straits. But the pony was gone, and that was bad enough. "If we had been able to use socks for food," wrote one bitterly, "we would perhaps have been able to get to the Pole."

On Christmas Day they stood at the edge of the plateau, and began the 400-mile haul up the dome of the southern ice-cap. "First there was soft snow in layers, then soft snow so deep that we were well over our ankles, and our feet were cold from sinking in. We go steadily on." But their goal was still far off, and food was dwindling: they reckoned they had just a month to reach the Pole and get back to the first chain of depots that awaited their return. They cut their rations till they were marching at the margins of strength and warmth. The height plagued them with violent headaches, "as though the nerves were being twisted up by a corkscrew." Shackleton was becoming aware that it could not be done. "If we go on too far it will be impossible to get back over this surface, and then all our results will be lost to the world." For a few more days they battled on through a blinding blizzard with the temperature falling to 70° of frost. Then the leader curtly noted: "Our last day out. We had shot our bolt."

With his gambler's temperament, to turn back was the bitterest and the greatest decision of his life. At 4 a.m. on January 9, 1909, they left their camp and, half-walking, half-running, pushed a little farther south. At the frontier of prudence they hoisted the British flag. "While the Union Jack blew stiffly in the icy gale that cut us to the bone, we looked south with our powerful glasses, but could see nothing but the dead white snow plain." They were 97 miles from the South Pole.

The journey back was a nightmare: a constant struggle to get from depot to depot before their food ran out. On the Beardmore Glacier Shackleton was nearly maimed by two heavy falls. Time and again his companions vanished down crevasses, somehow hauling each other out by their sledge-harness. Reaching the Ice-Shelf, Wild fell ill; this slowed them down so badly that they were reduced to two biscuits each per day. One forlorn morning, Wild, weak with dysentery, ate his biscuit as usual – and then noticed Shackleton's hand slipping a second into his pocket. "What's that, Boss?" he demanded: but he resisted in vain. "Shackleton," he wrote afterwards, "privately forced on me his one breakfast biscuit. I do not suppose any man in the world can realize how much generosity was shown by this. I do, and by God I shall never forget it." In a state of collapse, and with another man sick, they reached the last depot – guided to it just in time by the flashing light of an empty tin set to catch the sun's rays. It had been laid by Ernest Joyce, who had a good idea of what they would be hoping for. They threw themselves into the snow to gorge boiled mutton, plum pudding, cake, Carlsbad plums, gingerbread and crystallized fruit.

They reached their ship disappointed men. "Our geological work and meteorology will be of the greatest use: but all this is not the Pole." Nevertheless, The Boss had pioneered and mapped the route; and through four months of fearful privation his leadership had never faltered. Moreover, good news awaited him at base. During his absence another party from the ship had reached the South Magnetic Pole. All were scientists – Mawson was among them – and the observations they had made proved invaluable.

Shackleton stepped from the train at Charing Cross station on June 14, 1909 to be greeted by a message from the King and, to a storm of cheering, by Scott's warmly extended hand. This time the gathering at the Albert Hall included the Prince of Wales; and up and down the country audiences gasped to see motion pictures of the Southern Continent.

THE GLORIOUS DEFEAT OF CAPTAIN SCOTT

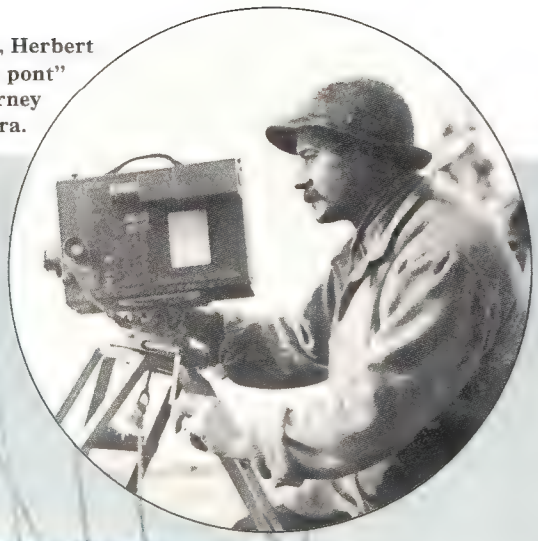
In 1910, when the second of Scott's two polar expeditions landed on Antarctica from the *Terra Nova* (below), the great continent stood much as it had done for centuries: mysterious, magnificent and almost unknown to man. Scott's aim was to be first to explore its heart, the South Pole. The result was a human tragedy of classical proportions – and evidence of the traditional British aptitude for seeing glory in defeat.

Voyage to the End of the World

The man who pitted himself against the elements was always likely to find an honoured place in British history, and Robert Falcon Scott closely fitted the traditional mould of this bulldog breed. Ambitious, iron-willed and ruggedly well-built, he cut a fine figure on the bridge of the *Terra Nova*, the tiny vessel which took his second, privately financed expedition to Antarctica. On June 1, 1910, as his ship slipped away down the Thames, Scott was aware that he embodied the hopes, not only of his numerous backers, but of all patriotic Englishmen.

But the prospects for success were clouded. Scott had slender resources for his daunting tasks of reaching the Pole and carrying out two years' scientific research. Money was desperately short. Supplies, dogs, ponies, the crew – all had to be squeezed into a 26-year-old, steam-assisted sailing barque weighing only 749 tons Moreover, he was dogged by ill luck from the start. When the *Terra Nova* reached Melbourne, he heard news that a Norwegian explorer, Roald Amundsen, had launched a rival Antarctic expedition and threatened to beat him to the Pole.

Scott at the start of the voyage was the picture of well-being and determination. Indeed, he was so confident, remarked one of the scientists in the crew, that he would have climbed Everest without oxygen.



The expedition photographer, Herbert Ponting, was so indefatigable that "to pont" became the accepted phrase on the journey meaning to pose before his camera.

Members of the expedition peer over the pack-ice from the rigging as the *Terra Nova* grinds her way towards the Antarctic.

Some of Scott's 33 sledging dogs, mostly Siberian, chafe within the restricted confines of the *Terra Nova*.

The First Omens of Failure

On January 4, 1911, Scott's polar expedition landed at Cape Evans on the edge of the Ross Ice-Shelf. Immediately the crew began to unload the *Terra Nova*, working round the clock to get ashore their food, fuel, livestock and equipment, including three petrol-driven sledges, a revolutionary form of transport in those days. Almost at once, there were bad omens. The newest and best motor-sledge fell through thin ice into 100 fathoms of water. Then one of the dogs mysteriously died. And the following month, on February 22, during a short, exploratory trip, the *Terra Nova* discovered Amundsen setting up base 500 miles east of Cape Evans and 60 miles closer to the Pole.

Had Scott but known it, Amundsen was not the only threat to his success at the Pole. Far more serious were his transport difficulties. Unlike Amundsen, who relied entirely on 52 dogs to haul his sledges, Scott placed his hopes in a mix of motor-sledges, ponies, dogs and men. In the event, the two remaining motor-sledges proved useless; the ponies soon sickened and died; and the dogs were not fully utilized: the British found they were difficult to handle and Scott had moral scruples about their sufferings in the sub-zero Antarctic climate. Moreover, he refused to kill the weakest as meat for the fittest, as Amundsen did. That left man-haulage. Scott seemed oblivious to the sufferings of the team members – including himself – which equalled those of the dogs. Indeed, he positively favoured man-hauling, feeling it would be "nobler," especially for the four men chosen to go on the last leg to the Pole. This decision, taken partly on emotional grounds, endangered not only the success of the polar expedition, but the very lives of the men who were to carry it out.

Lt. Henry Rennick carefully leads one of the 15 Manchurian ponies to freedom after its cramped ordeal on the seas. To celebrate, it immediately rolled wildly in the snow.

Scott's hut at Cape Evans, 50 feet long by 25 feet wide, stood on a stretch of black sand near the volcanic Mount Erebus (background). It housed the 25 men, their personal effects and equipment, with some overspill outside.

Lt. Edward Evans (left) and biologist Edward Nelson hack out a handy ice-box for seal meat.

A member of the expedition, unidentifiable in his balaclava, stacks the vital cooking coal ready for sledging to the hut at Cape Evans.

Sheltering from the Elements

By the time the permanent night of the Antarctic winter closed in at the end of February, 1911, and the *Terra Nova* sailed away to New Zealand, Scott and his party had already laid food depots as far south as possible, ready to break into on the return journey from the Pole. As they settled down in the snug hut at Cape Evans to await their spring departure, they completed meticulous plans for 1,800 miles of polar trekking, while they got to know each other well in their cramped surroundings.

The main problem was to limit the weight of stores and food to be carried. Each man, they estimated, would need daily rations of 4,100 calories, derived from fat, starch and protein. But modern calculations have shown this to be a serious underestimate: 800 calories short. Moreover, the planned diet contained no vitamins, which were still unknown; and since there was no lime juice either, because its effectiveness was then disputed, Scott's party were left unprotected from the debilitating effects of scurvy.

On November 1, as the icy skies lightened with the approach of spring, Scott's polar assault began. Barely halfway to the Pole, his team were already man-hauling the loaded sledges. Slowly but steadily weakening from the poor diet, they found themselves in a race, not just for the Pole, but for sheer survival.

(From left) Lt. "Birdie" Bowers, assistant zoologist Apsley Cherry-Garrard

Scott writes his diary three weeks before starting for the Pole. Photographs remind him of the family he knew he might not see again.

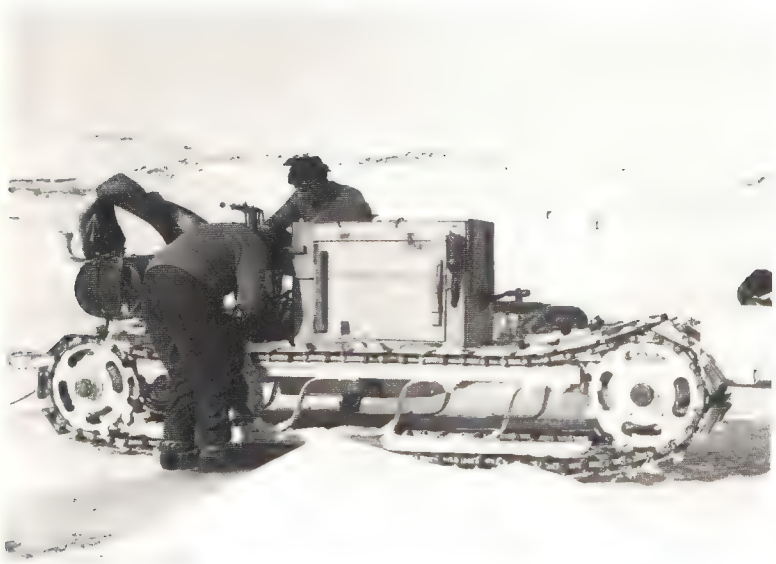
Petty Officers Edgar Evans (left) and Thomas Crean turn their hands to mending polar sleeping-bags of half-tanned reindeer skin.

("Cheery"), Capt. Lawrence "Titus" Oates, dog-keeper Cecil Meares and surgeon Dr. Edward "Atch" Atkinson relax on their bunks at Cape Evans.

Cecil Meares relaxes at the pianola. Scott commented that he was a man happy only "in wild places."

Dr. Atkinson carries out a litmus test on the blood of one of the men in the mistaken belief that an excess of acid would indicate scurvy.

THE BEARDMORE GLACIER, described by Scott as "the great glittering river of ice," formed a snow-covered highway through the Queen Alexandra Mountains, towering behind. Beyond this 120-mile pass lay the polar plateau and the South Pole itself. This photograph, showing the expedition encamped on the glacier, was taken by Scott himself.



Two of Scott's party tinker with one of the two motor-sledges. Both sledges broke down and were abandoned after 50 miles of travel.

The Race for Survival

When they were upon the polar plateau, only 150 miles from the Pole, Scott announced the names of those who would go on the last leg: five men – himself, Wilson, Oates, Evans, Bowers – instead of the four for whom there was food. Why Scott changed his plan will never be explained. As they approached the Pole, still in hopes of triumph, the going became harder and harder. The canvas harnesses jerked into their painful stomachs with each step; the loaded sledge – only one now – became like a weighted plough in heavy clay. Their strength ebbed; the monotony became sickening.

Then, on January 16, 14 miles from the Pole, a dark speck appeared ahead. It was a black flag, with the imprints of dogs' paws and sledge tracks patterning the snow on either side. Amundsen had beaten them. It was a terrible blow. "I am very sorry for my loyal companions," wrote Scott. Reaching the Pole next day was utterly depressing. With a sinking feeling of the immense effort still to come, at the mercy of the next Antarctic winter, they began the 800 miles of "solid dragging" back to the One Ton Depot, the first of the big food depots the expedition had laid a year before. They never made it.

Ponies stand exposed to the bitter wind in one of the early camps on the Ross Ice-Shelf. They were all dead by December 9.

Man-hauling the supplies was the only solution for Scott and his men after the last dogs were turned back on December 15.

After finding Amundsen's tent at the Pole (above), with a note dating his arrival a month before, Wilson, Evans, Scott, Oates and Bowers (left to right) took this photograph of themselves, operating the camera with a long thread.

we shall stick it out
to the end but we
are getting weaker of
course and the end
cannot be far
It seems a pity but
I do not think I can
write more –
R Scott
Last Entry
For God's Sake look
after our people

THE BITTER DISAPPOINTMENT in Scott's face is clearly visible in this close-up from the historic photograph of the whole party taken at the Pole. But Scott was, in fact, still intent on beating Amundsen to the headlines with news of his arrival. Then, when his luck failed on the home journey – with gale force blizzards, drastic fuel shortages, frostbite and possibly scurvy – he resolved to meet death with determination. His last diary (right), a fine document of human composure, was written with a firm, decisive hand, though Wilson and Bowers were already dead beside him and he was very soon to join them. A bottle of opium tablets was untouched. When the search party from the *Terra Nova* found his half-buried tent six months later, with the bodies still lying in their sleeping-bags, the tragic events told in his diary – notably the death of Oates, who walked out into a blizzard and gave his own life to save those of his friends – moved the British nation to tears. Scott's tent was only 11 miles from the vital food depot. Their bodies lie there still, now 50 feet beneath the icy surface of Antarctica.

II. Heroes to the Last

Within a few months of Shackleton's return from his epic and so nearly successful attempt to reach the South Pole in 1908–09, Robert E. Peary of the U.S. Navy reached the North Pole. To the British Press and public this was an urgent challenge: if America had won in the north, Britain must certainly conquer in the south. To Scott, who saw the race for the Antarctic as "one chapter in the romance of England on the seas," national and professional pride were involved. And there was the personal spur of his unspoken rivalry with Shackleton. He announced his second expedition; and nearly 8,000 men volunteered to join him. The race for the South Pole was approaching its climax.

But Scott remained a scientist at heart. To him, a big programme of Antarctic research was as important as a dash for the Pole. When his ship *Terra Nova*, the largest and sturdiest type of Scottish whaler, left Cardiff in June, 1910, she carried a party of 33 for work ashore. Among them were scientists and sailors who were veterans of both his own and Shackleton's previous ventures: Dr. Wilson headed the research team, and the staunch figures of Lashly and Evans were on board. The transport problem was as vexing as ever: but Scott decided to try everything. He had with him 15 Manchurian ponies in charge of Captain Lawrence Oates of the 6th Inniskilling Dragoons, as well as 33 dogs. And below hatches there was a novelty: three motor-driven sledges. They were among the first caterpillar vehicles, riding on plywood tracks armed with spikes. They had a top speed of $3\frac{1}{2}$ m.p.h., no reverse and no brakes. But Scott had high hopes of them: "a small measure of success will be enough to revolutionize polar transport," he said confidently.

At Melbourne a shock awaited Scott, in the form of a cable from Madeira: "Am going South – Amundsen." This experienced Norwegian explorer, with his ship *Fram* and his highly competent companions, was already an old hand in both polar regions. Beaten by Peary in the Arctic, he was now set on achieving a first to the South Pole instead – having hitherto kept his change of plan strictly to himself. Scott's men were indignant at this secrecy: but all agreed that Amundsen would be a formidable competitor. He was a traveller rather than a scientist. His sole aim was to win the race in the south. He was known for his ruthless efficiency. And – more ominous – for his unrivalled expertise in handling dogs.

By the Antarctic midsummer the *Terra Nova* was berthed alongside the ice not far from Hut Point, busily unloading men and stores. Scott would make his all-out attempt next spring. He would follow Shackleton's route across the Ice-Shelf and up the Beardmore Glacier to the polar plateau. But it would assist the return march, and save time in the spring, if a large depot could be laid at once at a point as far south across the Ice-Shelf as possible. The laying of this depot – "One Ton Depot" they called it – proved a discouraging business. Weather conditions on the Ice-Shelf were severe: but more disturbing, transport troubles multiplied again. Once more the dogs were intractable, and Scott lost all faith in them: "They will never go the pace we look for." The motor-sledges had to be warmed with blow-lamps for starting, and continually broke down despite Lashly's untiring repairs. The ponies, with their weight and sharp hoofs, sank to their bellies in soft snow, and five died of exhaustion or had to be shot. Winter was approaching, and they finally had to lay One Ton Depot 36 miles closer to the main base than they had hoped. The difference was later to prove critical.

Meanwhile the *Terra Nova* steamed along the face of the Ice-Shelf to establish a second base for scientific work. On her voyage, the masts of an anchored ship rose to meet her. It was the *Fram*; and Amundsen and his men, with 52 dogs, were already ashore. Withdrawing as diplomatic courtesy required, the *Terra Nova* brought back the worrying news to Scott. "I never thought he could have got so many dogs safely to the ice. But above all he can start his journey earlier in the season – an impossible condition with ponies."

They kept Christmas Day at the southern midwinter – June 22. The ship's cook excelled himself. There was roast beef and Yorkshire pudding, a Christmas tree, and presents for everyone sent by Dr. Wilson's sister. But it was only a short respite from the hard detailed planning for the polar attack.

They were to allow 144 days for the journey to the Pole and back – every possible moment of the summer season. There would be a massive lift of food and stores past One Ton Depot to the foot of the Beardmore Glacier, by all available transport. There the dogs and motor-sledges would turn back, and – strangely, considering Scott's aversion to killing dogs – the ponies would be shot for food. Onwards from the Beardmore, three units of four men each would man-haul their sledges. Two of these units would dump their loads at successive points, and return to base. The final four-man unit, including Scott, would carry on to the Pole. Every aspect of the 1,800-mile journey was meticulously worked out.

They started in November, 1911: 16 men, five tents, ten ponies, 23 dogs, two motor-sledges. The motor-sledges "worked well but not very well" for the first 50 miles across the Ice-Shelf, and then gave out altogether. At each camp the ponies had to be sheltered behind snow-walls specially thrown up for them. Then, as they approached the Beardmore, drift snow began to blow into their faces from the mountains around it. Wind and whirling snow increased until the tents were enveloped in a howling blizzard. The ponies suffered intensely, for the wet snow drove beneath their rugs and drained the heat from their bodies.

After four terrible days the wind dropped. The surfaces were now appalling; but they made the foot of the Beardmore as planned, though behind schedule. "Very heavy going especially for the poor ponies," wrote Lashly. "They had their last feed this morning. All killed tonight." It was a bad moment. But at least they would now be independent of animals; and Oates, his services as stableman at an end, became a draught-animal himself. "After all," one of the party mused, "it will be a fine thing to do that plateau with man-haulage in these days of the supposed decadence of the British race."

Climbing the Beardmore, now at the head of "twelve good men and true," Scott was obsessed by the thought that he was behind Shackleton's timetable and urged the sledge parties painfully on to a faster pace. But the added exertion

One man's daily sledging ration consisted of (from left) cocoa, pemmican (fat with meat extract), sugar, biscuits, butter and tea – there were no vitamins to prevent scurvy.

of catching up sapped their energy: "The teams soon lost their springy step, the sledges dragged more slowly. The strain was beginning to tell, though none of us would have confessed it."

As they emerged on to the plateau Lashly celebrated his birthday by accidentally falling into a crevasse to the full length of his harness, and spinning like a top in the chilling blue depths: "Rather a ghastly sight while dangling," he commented briefly in his journal. They hauled him out and wished him many happy returns of the day. His life was probably saved by Lieutenant H.R.Bowers, the officer in charge of equipment. The previous day, among a hundred other duties, he had seen that Lashly's harness-rope was worn, and had replaced it.

The first of the supporting teams duly turned back. Then, 168 miles from the Pole, the second prepared to do likewise leaving Scott, Dr. Wilson, Captain Oates and Petty Officer Evans to march on by themselves. But here Scott changed his plan. Bowers had been a magnificent worker, and Scott could not bear to disappoint him. At the last minute he ordered Bowers to join his party for the final stage. It was a grave risk to take. Every detail had been organized for a four-man polar team. Now there would be five. And Bowers had no skis: a small man with short legs, he would have to walk in deep snow.

On they shuffled and trudged, the five of them, leaning into the unceasing wind with sledge-traces taut, gulping their breath in sharp, numbing mouthfuls; on across the shelterless horizons of the plateau, the mountains and valleys of the southern continent far beneath their feet, the mathematical point of the Pole somewhere in the void ahead. At their rest-camps, one of them thought, Scott seemed to lie withdrawn into himself. But when their observations showed they were 27 miles from the goal, he noted: "It ought to be a certainty now."

Then suddenly, their virgin path was joined by the tracks of sledges and dogs. And Bowers's keen eyesight picked out, in the white distance before them, a tiny tent with a little oblong shape at its peak. The spot, which was within half a mile of their own fix for the position of the Pole, was deserted. But the shape resolved itself into the Norwegian flag. And when they opened the tent they found two letters inside. One, addressed to the King of Norway, reported success. The other was for Scott. "Dear Captain Scott," it read, "As you are probably the first to reach this area after us, I will ask you kindly to forward this letter to King Haakon VII. If you can use any of the articles in the tent please do not hesitate to do so. With kind regards I wish you a safe return. Yours truly, ROALD AMUNDSEN."

Amundsen had beaten Scott by just over a month. His overland journey from the *Fram* had gone like clockwork, with four sledges each pulled by 13 fine Greenland dogs. He had studied the previous records of Scott and Shackleton with the greatest care – and profited from them. Along his route he had methodically shot his weaker dogs as food for the others and for his men. And his homeward journey was almost as uneventful as his outward. The verdict of another famous Norwegian explorer, Fridtjof Nansen, was that if Scott had "used more dogs and less man-haulage he might have made an easy and brilliant journey to the Pole and back."

On January 18, 1912, with his hopes frustrated, Scott stood at the extremity of the world with 800 miles between himself and safety. And the season was far advanced. "Now for the run home and a desperate struggle," he wrote. "I wonder if we can make it." But they picked up their food depots one by one, and with the wind behind them hoisted a sail on their sledge. "Good sailing breeze again this morning," Bowers jotted in his diary.

The snow goggles worn on Scott's first expedition in 1901–04 (left) and the re-designed pair used in 1910–12 (right) had unglazed apertures, since plastic had not yet come in. They were far from effective.

But a few days later a note of anxiety was creeping in. "Wind increased to force 8; in the morning it was blizzing like blazes." And, more alarmingly, "Evans got his fingers all blistered with frostbite." The following day, "We have only three days' food with us and shall be in Queer Street if we miss the next depot."

Then came a series of misfortunes. While they were still on the plateau, Wilson strained a tendon in his leg, both Scott and Evans fell into crevasses and Evans's fingers became almost useless. "Miserable march, blizzard all the time. Our sleeping-bags are getting steadily wetter, so are our clothes."

Soon Bowers's diary was down to brief, weary phrases. "Very heavy surface – ice crystals – lower temperatures – Wilson's leg – Evans's fingers. . . ." At the head of the Beardmore Glacier, Evans was weakening. He was the biggest man, and he had to support his stalwart frame on the same rations as the others. Scott was astonished at his breakdown, for his physique was usually splendid and he had been a P.T. instructor in the navy. Then a bad fall concussed him; and shortly afterwards he collapsed, dropping behind the sledge and delaying the rest of the exhausted party. They went back to find him crawling on hands and knees, his gloves off and a wild look in his eyes. That evening he lay insensible in the tent. "The safety of the remainder," Scott noted, "seemed to demand his abandonment, but Providence mercifully removed him at this critical moment. We did not leave him till two hours after his death."

Pony shoes of bamboo wire and leather were designed to prevent the animals from sinking into the powdery snow. They were all but useless: the ponies tended to eat them or kick them off.

The four others reached the Ice-Shelf from the foot of the Beardmore utterly worn out. It was still 430 miles to safety. The food at each depot was awaiting them, but much of the precious paraffin, vital to cook hot food, had leaked away. The weather was getting rapidly colder. The surfaces were appalling, "like pulling over desert sand." The daily mileage was decreasing. Oates's feet were now badly frostbitten. The lack of hot food made his failing condition worse, and he knew he was imperilling his companions' chances. He turned to Wilson for advice – as they all did in moments of personal crisis. "Slog on," Wilson told him, "just slog on."

Only 29 miles from One Ton Depot, Oates could slog on no farther. Next morning, another blizzard was raging round the tent. He got to his knees. "I'm just going outside," he said, "and I may be some time." He opened the tent flap, disappeared into the blast, and never returned. Some hours later Scott's pencil traced these words: "Though we tried to dissuade him, we knew it was the act of a brave man and an English gentleman. We all hope to meet the end with a similar spirit, and assuredly the end is not far."

Scott, Wilson and Bowers staggered on towards One Ton Depot. All were ill. Their last strength was ebbing. They were tortured with frostbite and Scott wrote of his right foot, "Amputation is the least I can hope for now." The relentless gales gave them no respite. They stopped – managed a few more desperate miles – – then were forced by the shrieking winds to camp and wait. "We had fuel to make two cups of tea apiece and bare food for two days." But the hours and days dragged by, and the blizzard howled on. "Every day we have been ready to start for our depot, but outside the door of the tent it remains a scene of whirling drift. We shall stick it out to the end, but we are getting weaker. . . . It seems a pity, but I do not think I can write more. R. SCOTT."

Their last camp was 11 miles from One Ton Depot. Had it been possible to lay the depot on the site originally chosen, the story might have ended differently.

Eight months later a search party from the *Terra Nova* came upon a mound of drifted snow. Digging into it, they found the tent; and Lashly crawled in. When he came out he said nothing, but tears were running down his face. The three

Ace Explorer of the Antarctic

Ernest Shackleton, trained by Scott on the voyage of the *Discovery* in 1901–04, went on to finance and lead more Antarctic expeditions than any other Briton. In 1909 he got to within 97 miles of the South Pole. Then in 1914, he embarked on a project to sledge right across the Antarctic continent. The attempt was another epic failure for British exploration. His ship, the *Endurance*, was trapped vice-like in pack-ice and eventually crushed, even before the expedition reached Antarctica. Shackleton and his 27 men were marooned on an ice-floe with three lifeboats as their only hope of salvation. After reaching the uninhabited Elephant Island, Shackleton daringly sailed over 800 miles to a South Atlantic whaling station where he obtained a small Chilean steamer and returned to rescue his stranded men, by now starving at the end of a 19-month ordeal. When Shackleton died on board ship in 1922 – of a coronary – he was embarking on yet another Antarctic voyage.

Encamped on an ice-floe early in 1916, Shackleton's men, already extremely short of food, strengthen the boats for what they hope will be a voyage of salvation.

Shackleton's men work desperately with picks and shovels in an attempt to cut a path for the ice-bound *Endurance*. For nine months from January 19, 1915, it was caught in the hardening winter ice.

The *Endurance* breaks up and sinks as the tectonic force of expanding ice crushes the hull. Barely in time, dogs and equipment, including three lifeboats, were moved to safety.

Weak from malnutrition, Shackleton's men still manage a jubilant greeting for a Chilean ship as it slips through an ice channel to their rescue under their leader's command.

Two boats form a hut roof on Elephant Island in the South Shetlands, the refuge of the stranded men in April, 1916, while Shackleton sailed for help in the third boat.

men "seemed to have passed away in a kind of sleep." The party's leader, a doctor, could find no trace of scurvy and attributed their deaths to "exposure and want" – that is, to starvation. Their scientific records and geological specimens were in order; and Scott's diary, beneath the head of his sleeping-bag, gave them the facts of the final months. Beside him, too, was his *Message to the Public*, written during his dying hours. "We took risks, we knew we took them; things have come out against us, and therefore we have no cause for complaint. But if we have been willing to give our lives to this enterprise, which is for the honour of our country, I appeal to our countrymen to see that those who are dependent on us are properly cared for."

The searchers read the burial service over the bodies, and left them undisturbed "with the most fitting tomb in the world above them." They lie there today, 50 feet or more below the accumulating mantle of snow on the Ross Ice-Shelf.

The news, cabled to Britain when the ship reached New Zealand, stunned the country. The U.S. President, William Howard Taft, with other heads of state, sent messages of shock and condolence. King George V was present at the memorial service in St. Paul's. The cathedral was crowded to the doors, and 10,000 people stood in silence outside.

At the gateway to Antarctica, on a rise overlooking Hut Point, the *Terra Nova*'s crew had left a great cross of enduring Australian jarrah wood. On it was engraved the last line of Tennyson's *Ulysses*: *To strive, to seek, to find, and not to yield.*

The race was over, but the epic years of the Antarctic maintained their momentum until the First World War. In 1911 Douglas Mawson, at the head of a well-organized Australian expedition, set out to map the still little-known coastline of the continent facing the Indian Ocean. Though he was a modest man with no desire to be a hero, he met with hair-raising adventures. Exploring the dangerous wastes around the Magnetic Pole, his two companions perished; and he himself, alone, with his feet festering from frostbite and his body breaking into sores, only just survived a fearful journey back to his base. But his three years of careful work won the wide acclaim.

Then, on the eve of war in 1914, Shackleton went back. His aim was to sledge right across the continent from the Weddell Sea to the Ross Ice-Shelf, passing the Pole en route. It was to be a land march of 2,000 miles. But it never even started, for the ice conditions in the Weddell Sea proved ferocious. His ship, the *Endurance*, was caught and squeezed to destruction by the terrific pressures. "It was a sickening sensation to feel the decks breaking up under one's feet. I looked down the engine-room skylight and saw the engines dropping sideways as the stays and bedplates gave way. The floes, with the force of millions of tons of moving ice behind them, were simply annihilating the ship."

Had it not been for Shackleton's powers of leadership, the voyage might have turned to tragedy. He got all his men away, with the ship's boats. And some six months later, after camping on the drifting pack-ice and threading their cockleshell way through the grinding floes, they managed to land on a forbidding shore at the tip of the Graham Land peninsula. From there it was 800 miles to the whaling-stations on the island of South Georgia, where help might be obtained. Through the stormiest seas in the world, Shackleton and five companions made the journey in an open boat – a feat comparable to Captain William Bligh's 1,500-mile voyage to safety in an open launch after the mutiny on the *Bounty* in 1789. And when at long last they arrived at South Georgia, the whalers who first met them fled as if from ghosts. Four successive ships attempted to rescue the men before a Chilean vessel brought them off.

Yet the calamitous adventure bore fruit. All through the drifting months one of the scientists, J.M. Wordie, had been making continuous observations of the ice movements. In 1957 the Commonwealth Trans-Antarctic Expedition of Vivian Fuchs and Edmund Hillary started out with Shackleton's objective, and succeeded where he had failed. They began their journey from the coast of the Weddell Sea; and the safe landing they were able to make there, with all their motorized equipment, was largely due to Wordie's cool work when daily facing an icy death over 40 years before.

Fuchs and Hillary's mechanized expedition symbolized how, in recent decades, the polar south has lost its terror – and its romance. The groups of little sledges of the Heroic Age have burgeoned into tractor-parks; the lonely tents into pre-fab buildings so numerous as to resemble small towns. Technologists, mechanics, airmen have multiplied. Bigger and more frequent expeditions have been mounted as Britain, France, the United States, Norway, Australia, New Zealand, Argentina, Chile, staking their claims to sectors of the Antarctic cake, have sought to substantiate them by their semi-permanent presence. National rivalries have threatened to dominate the opening of the last great continent.

But today it seems the future will be more rational. In the International Geophysical Year of 1957–58, 12 countries set aside their separate interests in a combined effort to increase Antarctic knowledge. It was an operation on the largest scale, especially on the part of the United States and the Soviet Union. Its scientific results were spectacular. But, equally important, it led to the Antarctic Treaty of 1959. By this agreement 16 nation-signatories pledged themselves to use the region only for peaceful purposes, to exchange results and personnel, and to freeze all political claims for 30 years.

As exploration inevitably becomes exploitation, will the privation and sacrifice of two centuries be proved worthwhile? Coal, lead, copper, iron, tin ore, gold and silver have been found. But how much there is of each is still unknown, and the cost of extraction would at present be prohibitive. Airports for trans-polar flights across the Southern Hemisphere are a possibility. So is tourism. So is the harnessing of blizzards for power. So is the use of ice-caverns as gigantic deep-freezes for the storage of surplus food.

And amid the growing spate of data and theories and ideas on the frozen south, there stands an intriguing suggestion. Some scientists believe the ice cover may be slowly melting, draining off to add to the volume of the oceans. One day – perhaps millennia hence – Antarctica may emerge as the fertile continent dreamed of by the early geographers.

Late-Victorian promenade and fête fashions, 1890